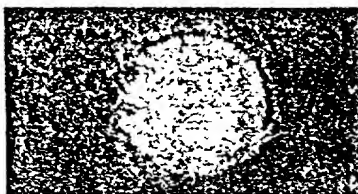


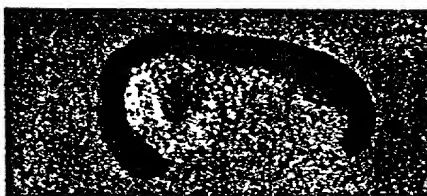
Figure 1

2(A)



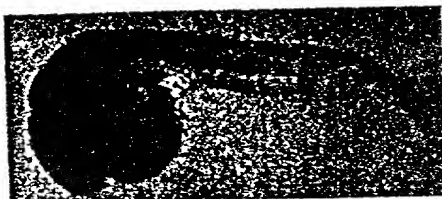
12 hpf

2(B)



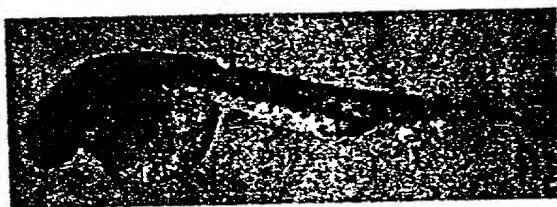
16 hpf

2(C)



24 hpf

2(D)



48 hpf

Figure 2 (A)-(D)

3(A)



H3 Antibody 24f

3(B)



upf Acridine Orange

Figure 3 (A)-(B)

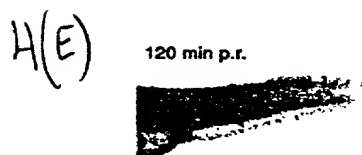
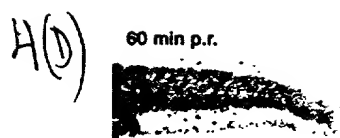
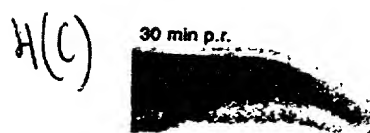
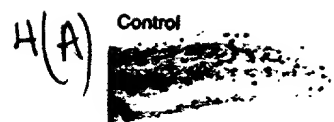


Figure 4 (A)-(F)

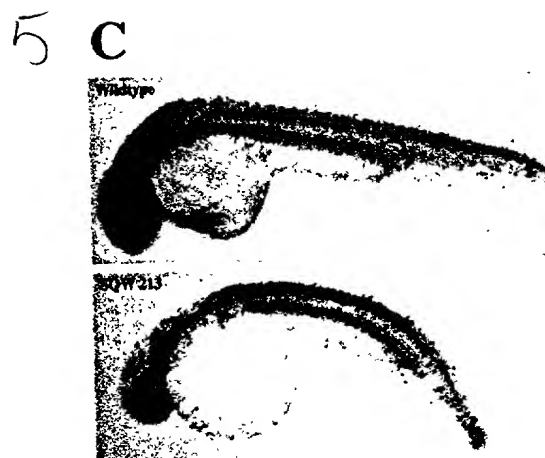
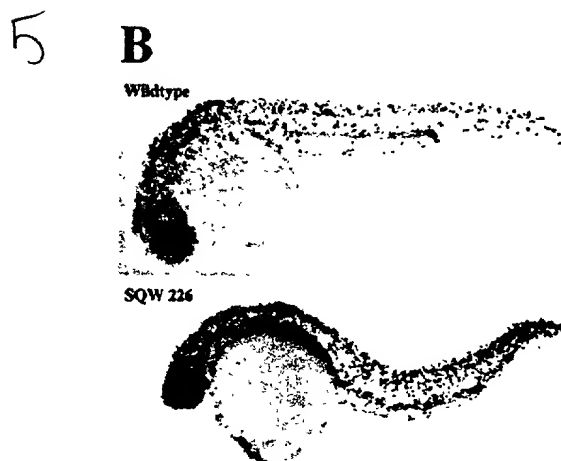
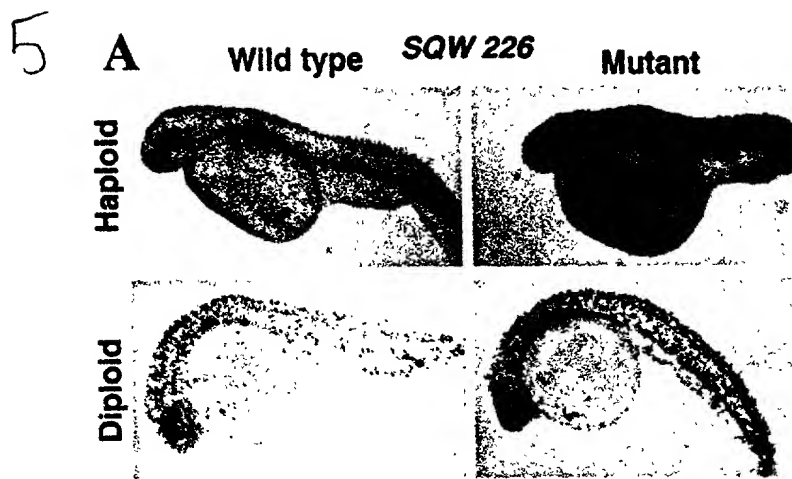
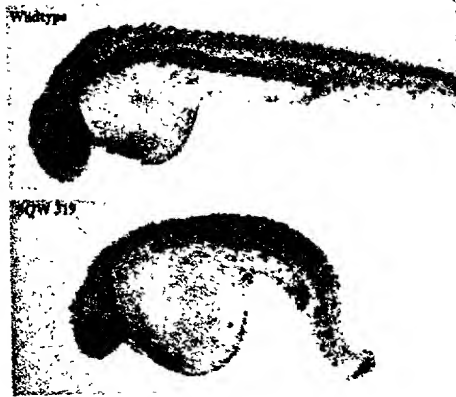
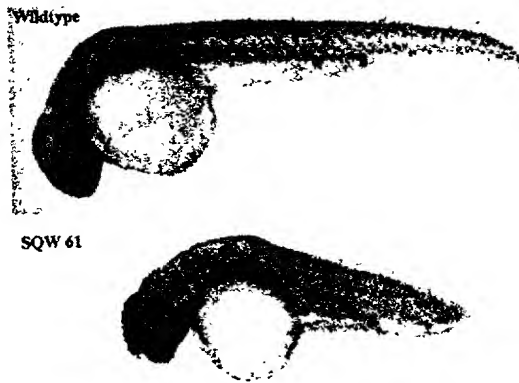


Figure 5 (A)-(C)

5 D



5 E



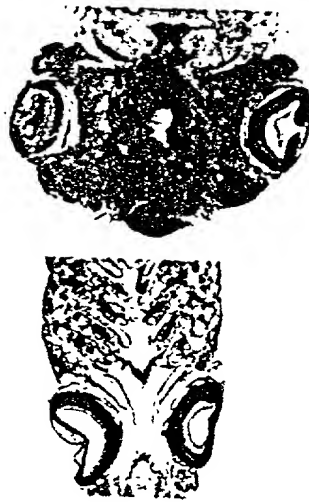
5 F



Figure 5 (D)-(F)

6

A



6

B



human

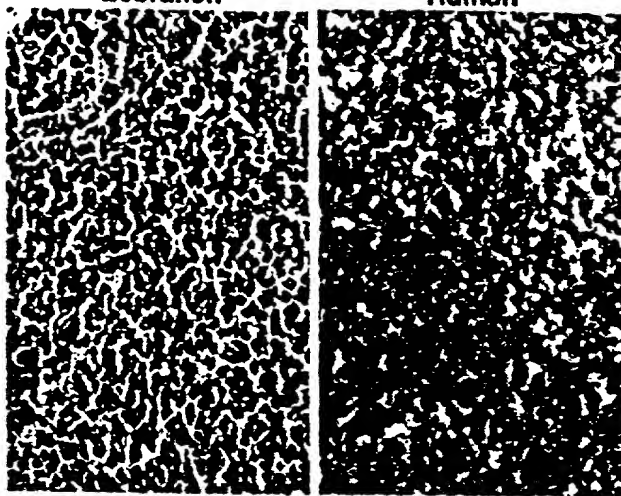
Figure 6 (A)-(B)

6

C

Zebrafish

Human



6

D

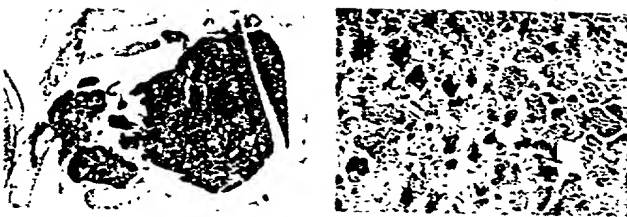


Figure 6 (C)-(D)

6 E

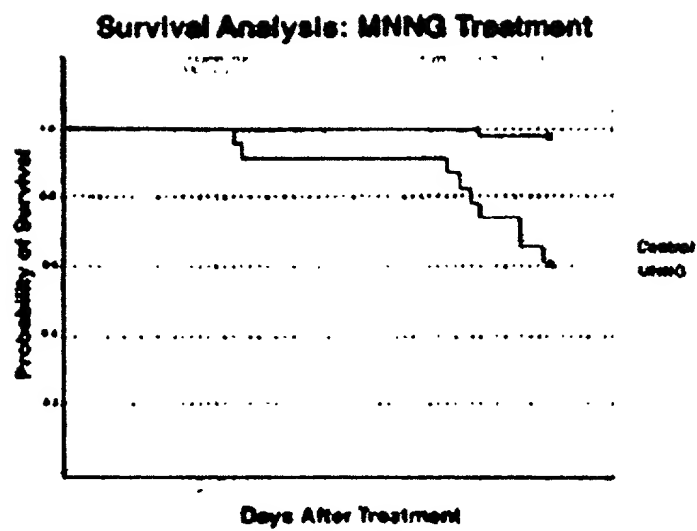
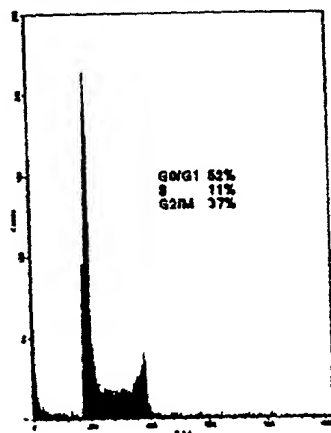


Figure 6 (E)

7 A

Single-Embryo FACS Analysis



7

B

FACS Analysis of Embryos after Ionizing Radiation

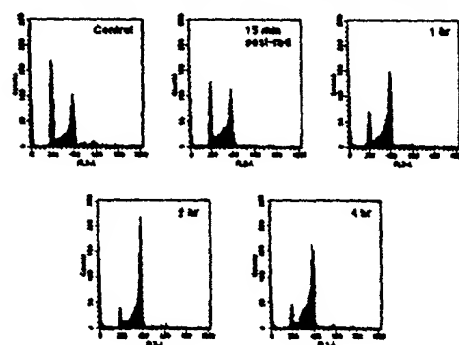


Figure 7 (A)-(B)

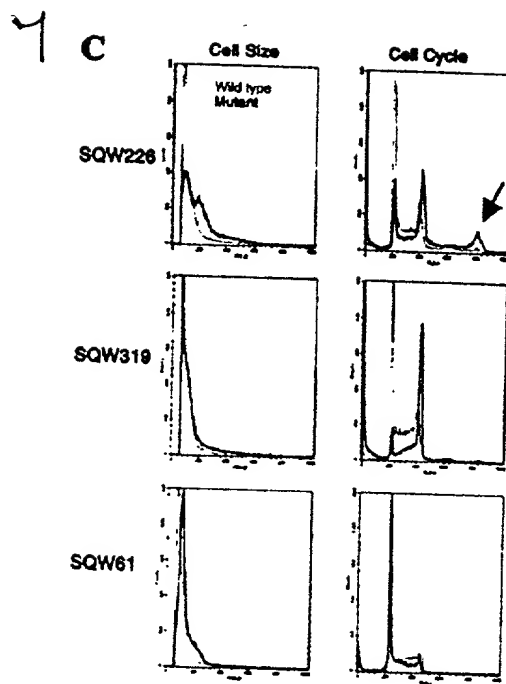
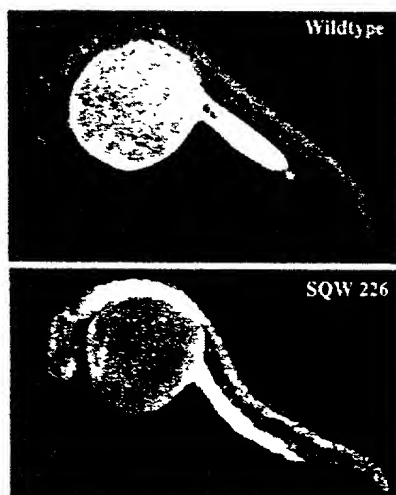


Figure 7 (C)

8

A



8

B

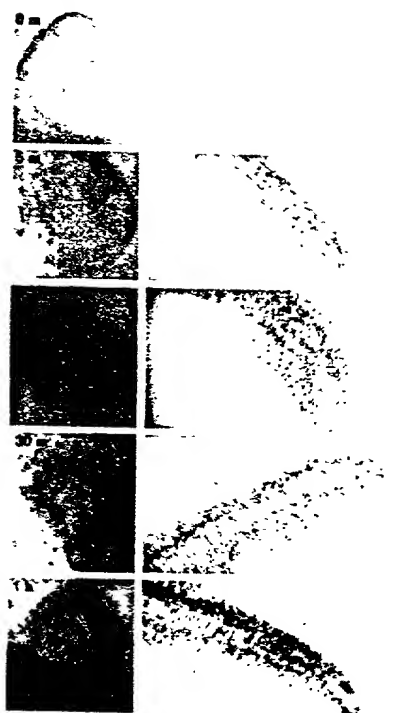


Figure 8 (A)-(B)

8 C

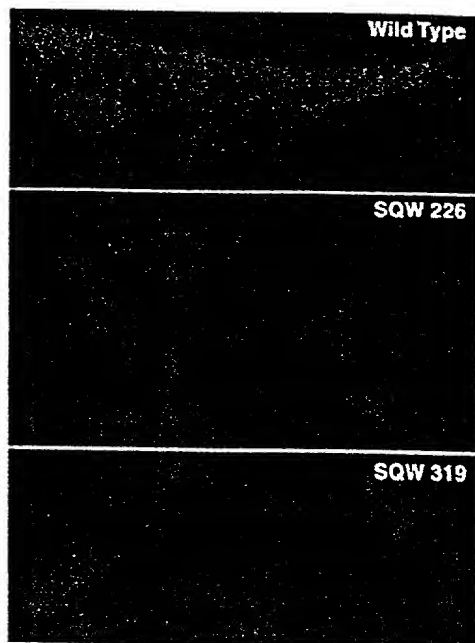


Figure 8 (C)

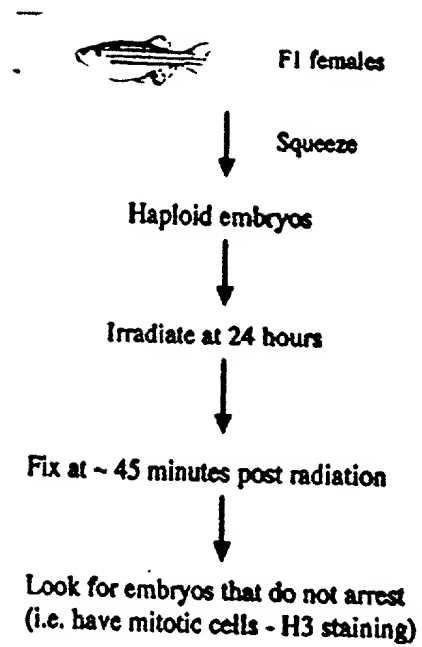
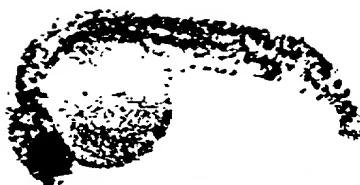


Figure 9

WT
non-irradiated



WT
irradiated



SQW 226
irradiated



Figure 10

Zfish MPPK--KRSSTPQKXELXGSLKSRSPQSGCH-----AVLSPERHKKQKQFVHSEECSTNSICOMVIRDMR 68
 Frog MPPKSPK---QQIPSCGEPSPQRP-----OFQOPQHFICEKXISQNVRGKQWNTYK 53
 Human MPPKTPKXTAATAAAAAEPPAPPPPOPOPEEDPEQSGPDLPLVRLFEETEEDPTALCCCKIPCHYRERAVLTMEK 30

Zfish EIRSMCK-TNNPYSNPQQTGAL-TPQHELEGINLITQFLKAVGLSTKQFISLVKXMTVNDTSPVNSVTPLENT 147
 Frog MFPSCGYMRE-TAKKXESLGLLTIASVOCEENTFTIELLKLRLSNRCFRLRENDINQVLQVONATSKLKKT 132
 Human VSSVDGVLGGYIQKKXELNGEITFLAVCLDENSFTIELQNIETSHKFFMLKETIT-----STVONANSLPKK 155

Zfish DVTLALYQRFYKIGSUFAPDMA-----KRKELWESSITMFLAKETFLGEQDVISFLLQVLEFARLSPSL 220
 Frog ENMCLFQKFCRIPLIFEECHMT---RAAVDTAPILXGTITFLARCKILQDEVLSSPLLQVLOYEILSPSSI 209
 Human DVLFAIFSKLERIGLILYLTQPS-SISTEINSALVLKYSITFLAKGEVLQEDQVIFSLQVLOYEILSPQML 234

Zfish LQSPNSVSSSTLSPPTTSRPNQCKSKPR--PAEMDQLLETCKEGQSVQBYQWQSTCMLQDVLLGLQGL 298
 Frog LKEPYKSAINGLPVNTPPSSSRPSQNRNTRYSPQSBTSKYLEFLQSNYQPMOBPPVYSTSVFLASAGISSHEGIP 289
 Human LKEPYKTA--IPINGSPTRPGQNSAPLAKQLENTRIEVLQKEHEGNDQVYFKNLFFVNSLGLVTSNGLS 312

Zfish PMEALSKQTEELHPSKIDARLFLSQEITLSPNKIEVSKYEVTPRNLFADLIAIPVQITSAATSTIQLRGGITSG 373
 Frog KYESLSRQTEELHPSKIDARLFLSQEITLKVQVQOSLOLEITPRHO--ESVFPVPPQIVGANTVQOLNTLSSA 367
 Human EVENLSKVEITLHPSKIDARLFLSQEITLQVQVQOSLOLEITPRHMLDEEVNLPVHIVETANTIQOLNTLSSA 392

Zfish SDCPSNLLWYKTIQVQSGEIKQVEELGEVFIQRFQANQCHQEGLRKCYLQALYKQVMSMLKSEEBRLSVQ 458
 Frog NDKSPOTLDSYFSKTYNPKTQITDEISHFGHMKEGASSVCCACAEIGYQYKLGCLYPMVAILKTEBERLSVH 447
 Human SDCPSNLLWYKTIQVQSGEIKQVEELGEVFIQRFQANQCHQEGLRKCYLQALYKQVMSMLKSEEBRLSIC 472

Zfish FSKLLNAAHFTSLACALEWITTVGSSLKNGGFGPSSGASOSVESOLCFPHILSVFQLPAPDYKVIESFKAEPTL 538
 Frog FSKLLNAAHFTSLACALEWITTVGSSLKNGGFGPSSGASOSVESOLCFPHILSVFQLPAPDYKVIESFKAEPTL 518
 Human FSKLLNAAHFTSLACALEWITTVGSSLKNGGFGPSSGASOSVESOLCFPHILSVFQLPAPDYKVIESFKAEPTL 542

Zfish KXDMVHLECEVIMESLAWAOSPLFDLIKQRE-EGPGEQAEPPATINQFLHNTAADLILSPVPPQRCQ----- 510
 Frog TSNMIMLECEVIMESLAWAOSPLFDLIKQRE-EGPGEQAEPPATINQFLHNTAADLILSPVPPQRCQ----- 598
 Human TRSYLHLECEVIMESLAWAOSPLFDLIKQRE-EGPGEQAEPPATINQFLHNTAADLILSPVPPQRCQ----- 622

Zfish --P-PVMEAPPTP--GTRAPSNLSLFYKKLYRMYLRUMFLSNLTSHPEEPITHTLCTILOEVELMRDRHLL 685
 Frog TSSVTNGQVSSSQPVQ---QKSTLSLFYKKLYRMYLRUMFLSNLTSHPEEPITHTLCTILOEVELMRDRHLL 674
 Human NST-ANAETQTSAPQTKPLKSTLSLFYKKLYRMYLRUMFLSNLTSHPEEPITHTLCTILOEVELMRDRHLL 701

Zfish QLETSATATGMYKMDLPTNTVAYKELPMTNQETFRVLTREGQYSTIVFYLRKQKLTNLOYSSPPFPLSP 765
 Frog QIMYCSNMGCKKMDLPTNTVAYKELPMTNQETFRVLTREGQYSTIVFYLRKQKLTNLOYSSPPFPLSP 754
 Human QIMYCSNMGCKKMDLPTNTVAYKELPMTNQETFRVLTREGQYSTIVFYLRKQKLTNLOYSSPPFPLSP 781

Zfish IIPHIFSPFK--NSPLVPCSNNVYSPLSSRY-----SPLVMTSRRIISIGESGSADEKTHQVSSQNSLS 837
 Frog IIPHIFSPFK--NSPLVPCSNNVYSPLSSRY-----SPLVMTSRRIISIGESGSADEKTHQVSSQNSLS 831
 Human IIPHIFSPFK--NSPLVPCSNNVYSPLSSRY-----SPLVMTSRRIISIGESGSADEKTHQVSSQNSLS 860

Zfish RSLGGSAFKPLKRLRFDQCOBAGSKS-SGESALQKLAENSTSTRVQOKLXEESSQKHP 904
 Frog RSAOTGTPKPLKRLRFDQCOBAGSKS-SGESALQKLAENSTSTRVQOKLXEESSQKHP 899
 Human RSAEGSNPKPLKRLRFDQCOBAGSKS-SGESALQKLAENSTSTRVQOKLXEESSQKHP 928

SEQ ID NO: 1
 SEQ ID NO: 2
 SEQ ID NO: 3

Figure 11

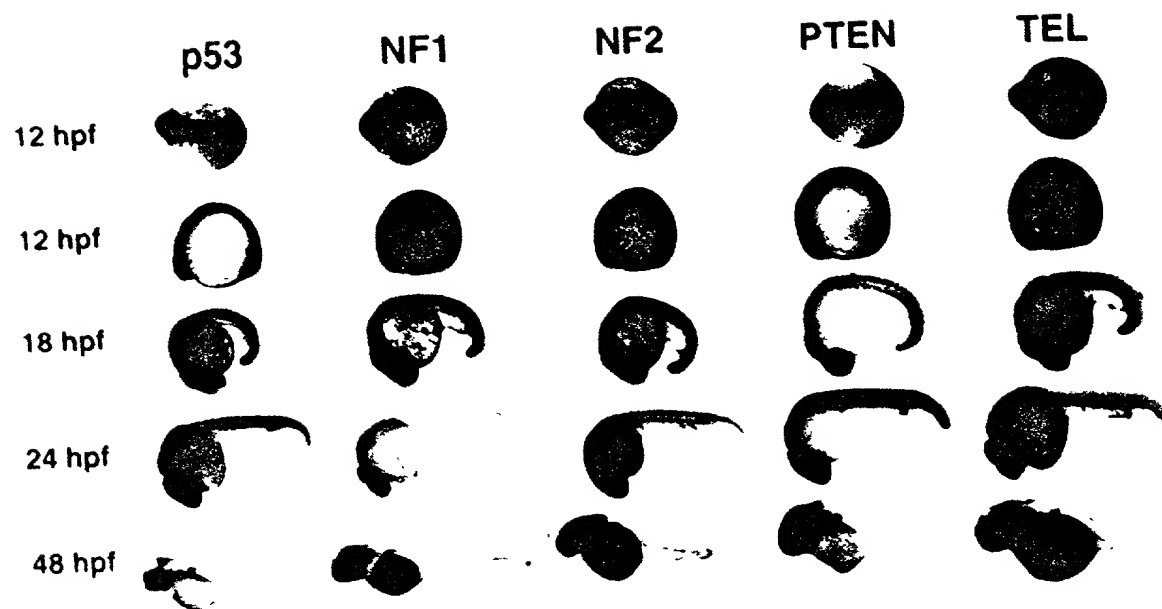


Figure 12



Figure 13 (A)-(C)

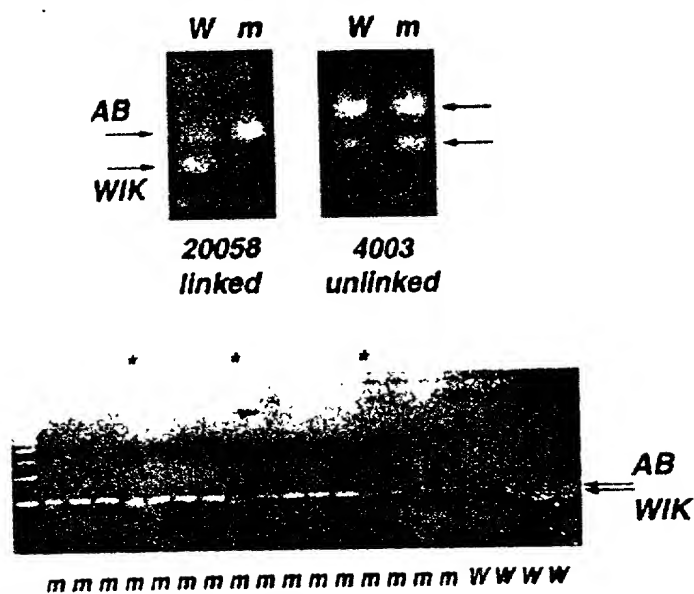


Figure 14

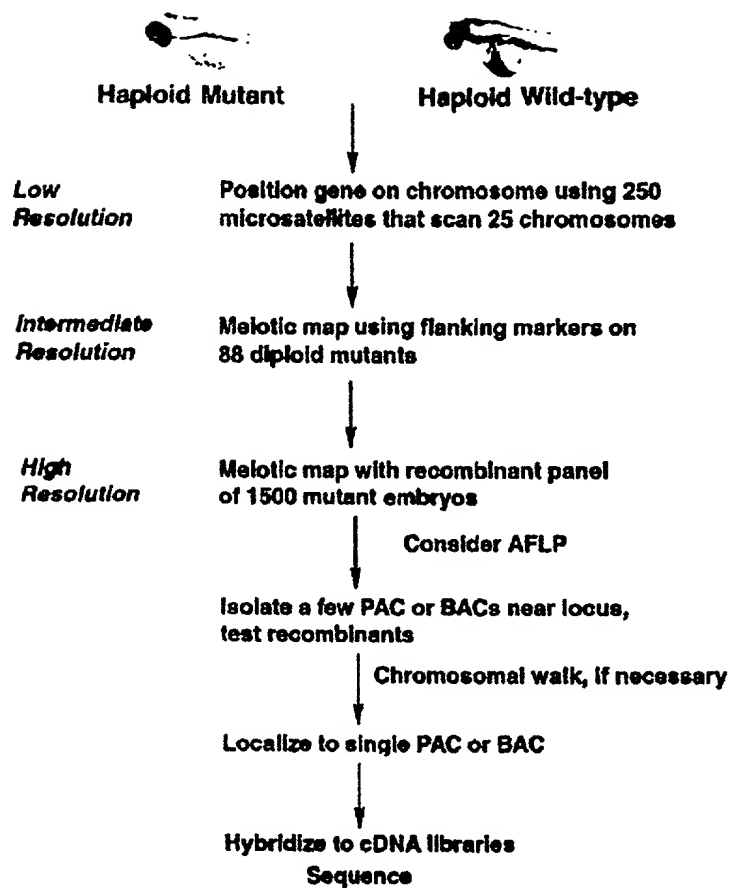
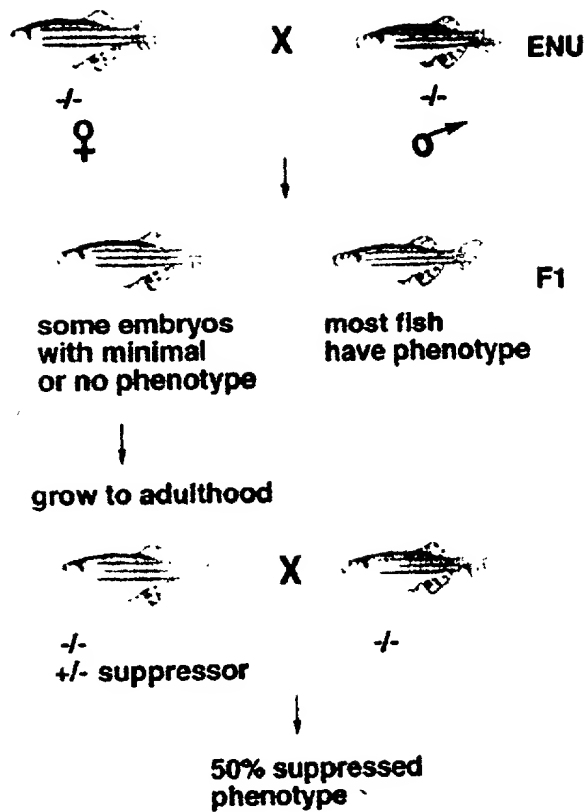
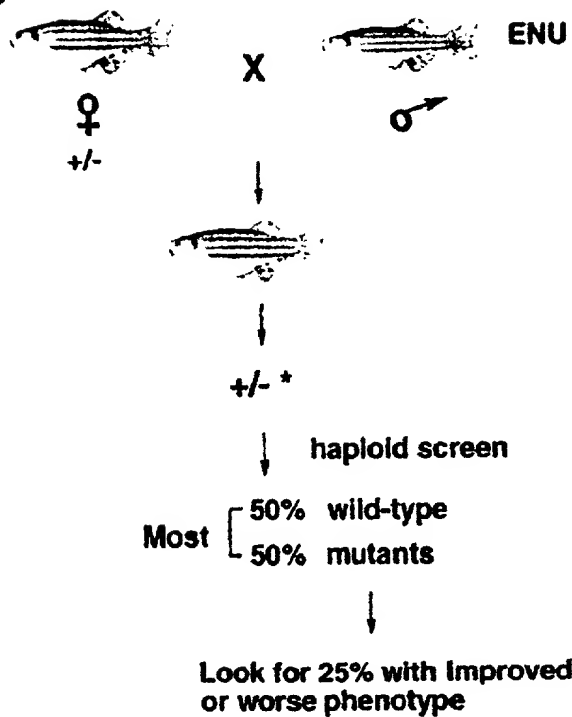


Figure 15

16 A

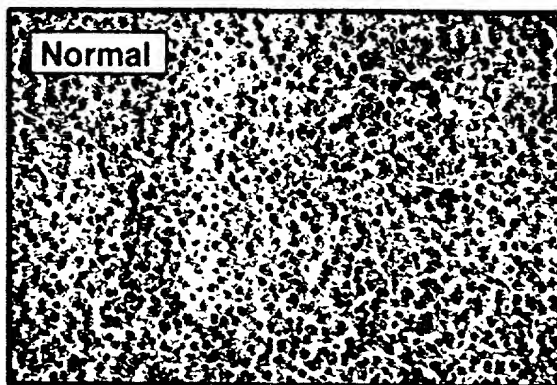


16 B

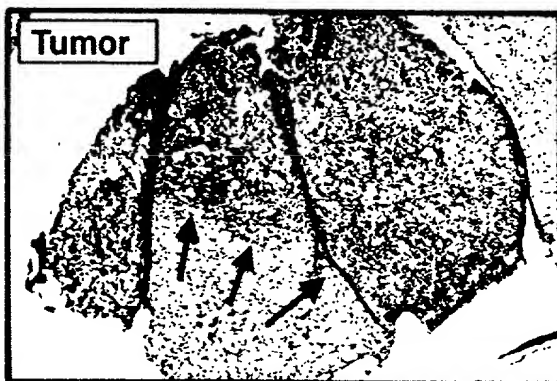


Figures 16 (A)-(B)

17 A



17 B



17 C

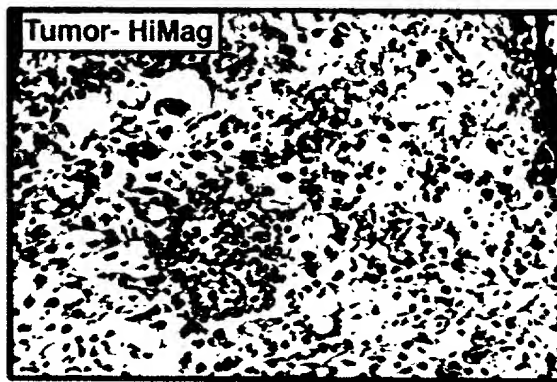
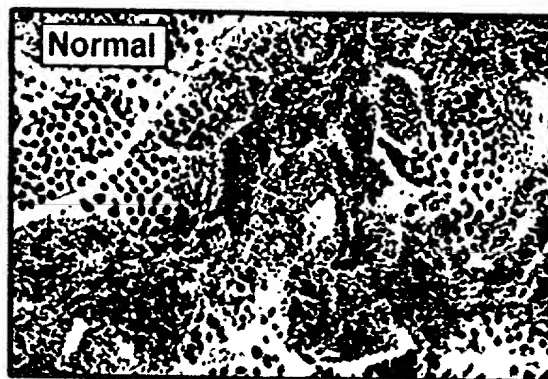
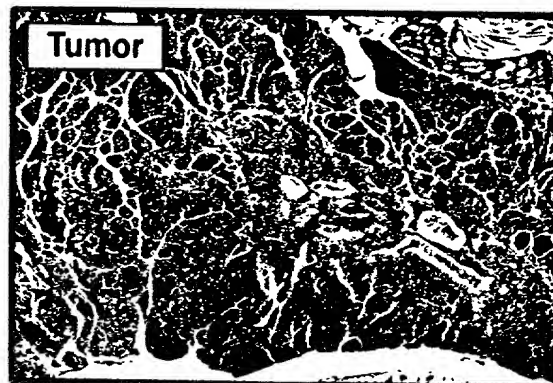


Figure 17 (A)-(C)

18 A



18 B



18 C



Figure 18 (A)-(C)

19 A



19 B



19 C

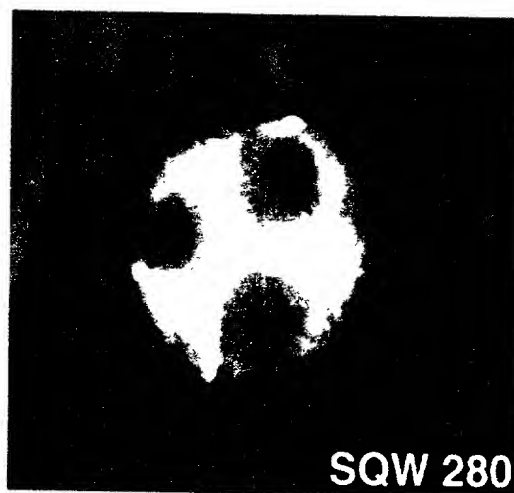
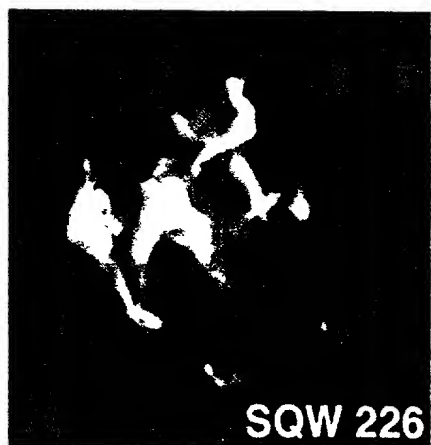


Figure 19 (A)-(C)

19 D



19 E

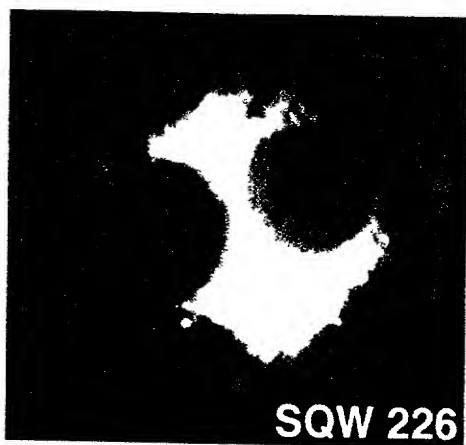
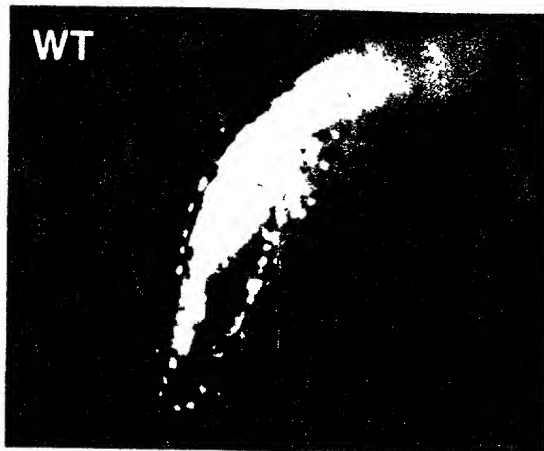


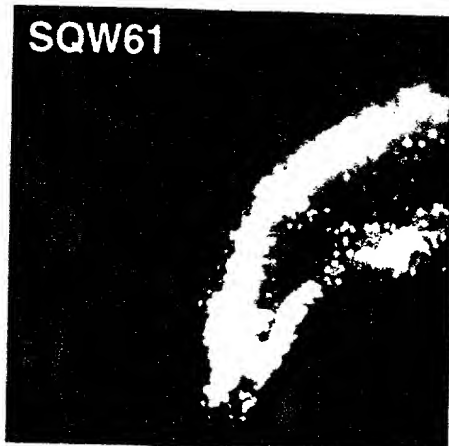
Figure 19 (D)-(E)

20 A WT



20 B

SQW61



20 C

SQW213

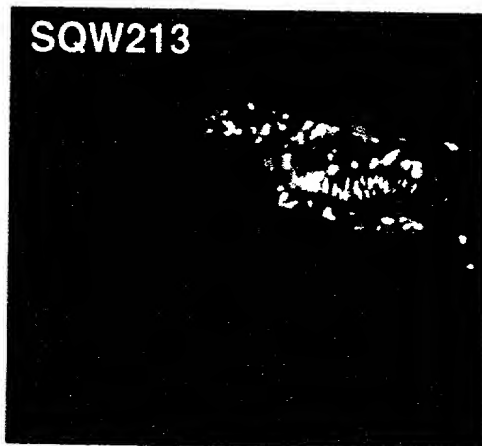
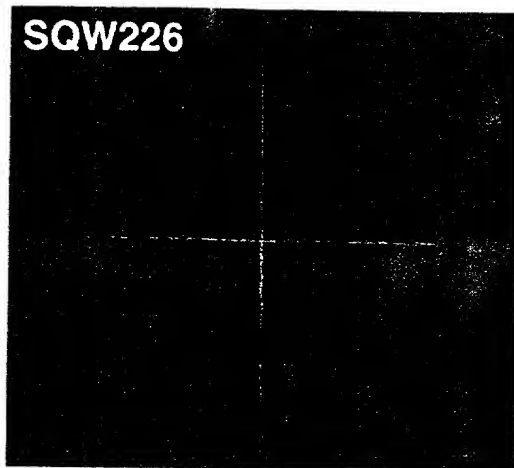


Figure 20 (A)-(C)

20

D

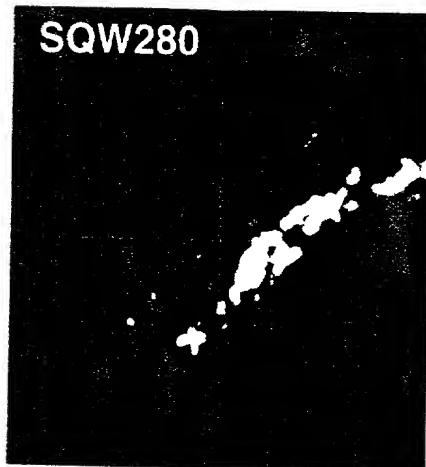
SQW226



20

E

SQW280



20

F

SQW319

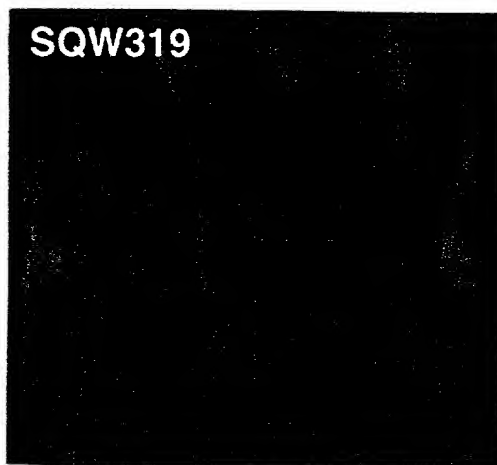


Figure 20 (D)-(F)

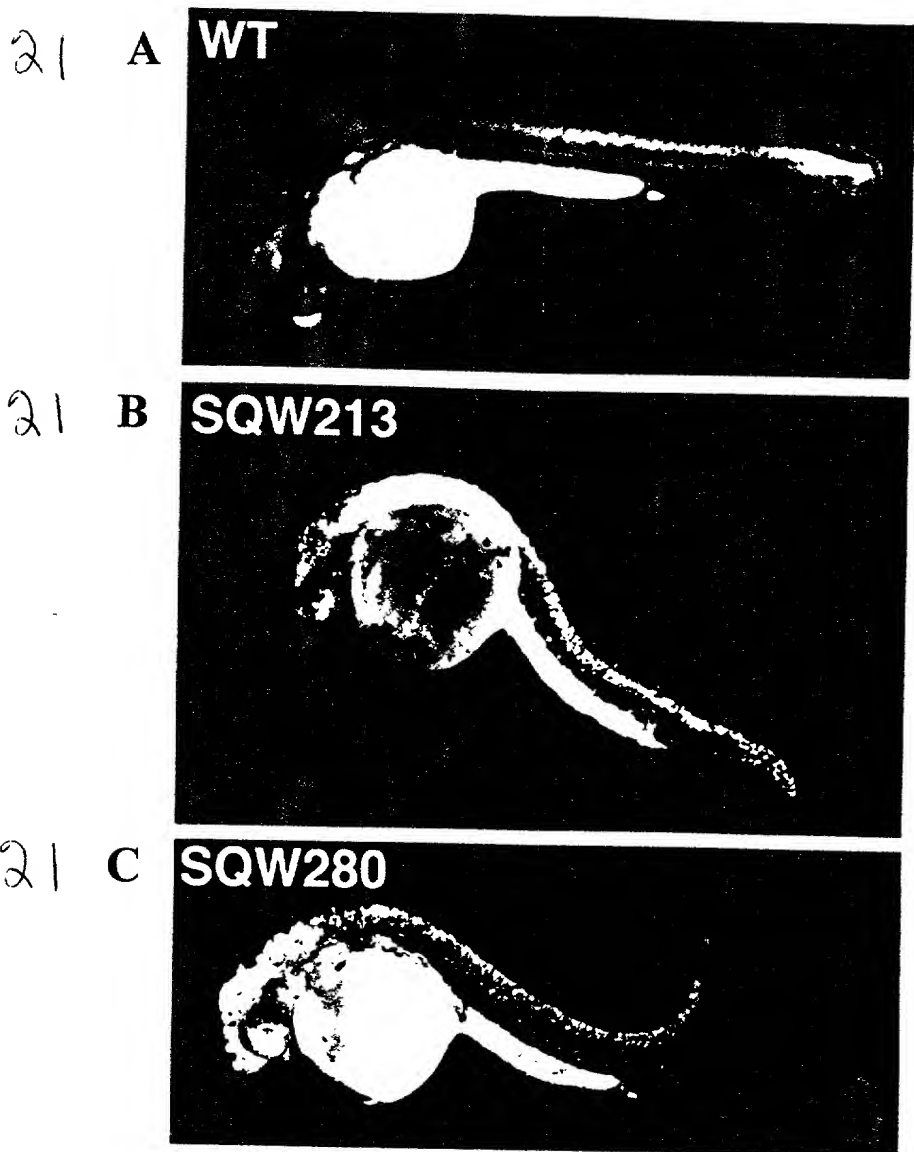
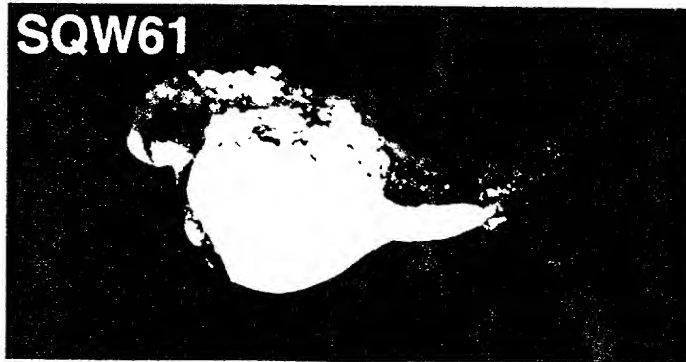


Figure 21 (A)-(C)

21 D

SQW61



21 E

SQW226



21 F

SQW319



Figure 21 (D)-(F)